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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PRIETO, BEATRIZ

ART UNIT

PAPER NUMBER

2142

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/513,015

Applicant(s)

BLOCK ET AL.

Examiner

Prieto Beatriz

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,8,17-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8,17-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is in response to RCE/Amendment filed 01/14/05, claims 6, and 9-16 have been previously cancelled), claims 1, 5, 25 & 28 have been amended. Claims 1-5, 7-8 and 17-28 remain pending and have been examined.
2. Acknowledgement is made to applicant's claimed the benefit of an earlier filing data under 35 U.S.C. §120 based on Application No. 09/063,335 abandoned as of 07/09/01.
3. Claim terminology has been given the broadest reasonable interpretation in light of the specification (see MPEP 2111). In this case, claimed term session means a representation of services (p. 22, lines 5-11), a service is a program that provides some function to the user (p. 24, lines 9-12) or a process that provides output data and responds to user request and input (p. 19, lines 3-4), services makeup a session (p. 22, lines 15-16), wherein a service may be a proxy (p. 19, lines 17-21); claimed term token is an identifier, an address or serial number (p.22, lines 511); claimed term "self-organizing" means the exchange of messages between servers enabling servers to be aware of the servers available in the cluster or of one another (p. 13, lines 1-8).
4. Quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action may be found in previous office action.
5. Claims 1-5, 7-8 and 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narendran in view of Andresen in further view of High Availability & Scalability with Dominos Clustering and Partitioning on AIX, Sept. 1998 (IBM hereafter).

Regarding claim 1, Narendran teaches substantial features of the invention as claimed, including, a client (col 3/lines 39-51), a first server (14) (col 3/lines 60-61) and a plurality of servers (S_1, \dots, S_N) (col 3/lines 57-62, col 4/lines 17-19);

initiating a connection between a client unit and a first server (col 10/lines 41-44 or col 3/lines 63-64);

determining at said first server a location of a service ("session") on one of said plurality of servers (col 4/lines 44-55, col 6/lines 18-21 or col 15/lines 14-17); and

redirecting said client unit via said first server to a second server having said service ("session")(col 18/lines 38-42, 54-57, col 4/lines 19-21 or col 15/lines 14-25);

exchanging information between a first server and a plurality of servers (col 15/lines 35, col 16/line 5); wherein said first and second servers can each provide said plurality of services (Narendran: abstract) and wherein said plurality of services comprise information (called "state maintenances") for a user of said client unit (Narendran: col 3/lines 49-56);

each of said plurality of sessions comprises a plurality of services requested by said client unit (Narendran: col 3/line 46-56, col 4/lines 49-52, 64-67);

redirection mechanism in event of server is configured to access services available on other server including re-computing the redirection probabilities to each replicate service across the remaining available services (col 6/lines 28-40);

wherein redirecting is executed in event of a server failure providing said service (col 12/lines 11-37 & col 12/line 58-col 13/line 10), redirecting client unit to a second server in response to a first server failure, thereby eliminating a single point of failure. The fault tolerant server system that provides redundant server having replicated services in event of failure, guarantees service availability in event of failure (see col 16/lines 36-33); however Narendran does not explicit teach where the plurality of server exchange information between themselves and continuing the services in event of a server failure;

IBM discloses redirecting when a first server fails to respond to a client request, redirecting said client to a second server maintaining access to said accessed session while continuing said plurality of services to said client, (see fail over on introduction on p. 1, redirecting in event of server failure see section 1.3.1 on p. 4, 6, transparent fail over feature can redirect request from an unavailable server to another available server of a cluster, see section 2.1.1 on p. 10, fail over to a backup on p. 14, redundancy against a single point of failure see section 2.2.1 on p. 16, redundant servers preventing a single point of failure section 2.2.2 on p. 17);

wherein when a server fails to respond to a client's request the request is fail over to another available server (see section 3.3.3.8 on p. 64); wherein synchronized redundant component (servers) transparently take over failed components and maintain data availability (section 1.2 on p. 2)

exchanging information among the plurality of server comprising state maintenance for a user client and used for redirecting user request (section 3.3.3 on p. 59-61).

It would have been obvious to one ordinary skilled in the art at the time the invention was made given the suggestion of Narendran for having a server redirect a client to an alternate server in event of failure by configuring redirecting server with the knowledge as to where the alternate servers having request service are located, to also configure all servers having this adaptive redirecting/scheduling

capability as taught by IBM. (Motivation to combine Andresen with Narendran presented in previous action is incorporated by reference). Further, servers are configured with information exchange capabilities including periodically broadcasting network configuration information, awareness of the services present (i.e. leave or join the resource pool) in the network as well as their respective capabilities and current load. One ordinary skilled would be motivate to enhance Narendran's system with the scalability, fault tolerant that prevents a single point of failure in the network by providing access to services via an alternate network and single points of failure on server by providing replicas of services on server that provide a transparent fail over to an available service, providing high availability with a rapid, uncomplicated network configuration, as suggested by IBM.

Regarding claim 2, wherein said initiating comprises: said client unit broadcasting a message to a domain of server comprising said plurality of servers (Narendran: col 4/lines 10-12), and said first server responding to said message (Narendran: col 14/lines 48-51 or col 15/lines 14-25).

Regarding claim 3, said initiating is in response to a prior server failing (col 12/lines 12-65).

Regarding claim 4, said service ("session") is associated with an identifier ("token") (Narendran: col 4/lines 5-16).

Regarding claim 5, said determining of claim 1, comprises said first server sending a message to said plurality of servers, said message comprising said token (Narendran: col 6/lines 19-26 and col 15/lines 35-col 16/line 5); and said plurality of servers responding to said first server with service information associated with said identifier (Narendran: col 6/lines 19-26 and col 15/lines 35-col 16/line 5) and determining location (e.g. IP address) at said first server of said session on one of said plurality of servers (Andresen: left column , 1st par., page 1), or where determining location further comprises receiving a message from said second server of an availability of said second server for having said session (Narendran: directory of services see col 15/lines 61-col 16/line 5).

Regarding claim 7, securing messages between said client unit and said plurality of servers (IBM: security p. 11).

Regarding claim 8, wherein said securing is performed with a keyed hash signature. Official Notice (see MPEP ,§ 2144.03 Reliance on "Well Known" Prior Art) is taken that keyed hash signature was old and

well known in the art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include this feature because it is a common authentication scheme which employs authentication tokens to improved security system against eavesdropping, dictionary attacks, and intrusion into stored password lists.

Regarding claim 17, said information exchanged between said pluralities of servers comprises a description of an information regarding devices or the presence of devices on the network also called network configuration (i.e. network topology) of said plurality of servers (Narendran: col 6/lines 19-21).

Regarding claim 18, updating status in said network topology on a relationship between a connectivity of said client unit and said second server (IBM: topology services section 2.1. 4 on p. 12, section 3.3.3 status updates on p. 59-61).

Regarding claim 19, this limitation is substantially the same as redirecting limitation on claim 1, same rationale of rejection is applicable.

Regarding claims 20 and 23, wherein said client unit comprises a ("thin client unit" and "thin client session" and a "stateless device") i.e. a computing device (Narendran: col 3/lines 49-56).

Regarding claim 21, wherein said session comprises a service ("thin client session") that services client's request (Narendran: abstract).

Regarding claim 22, maintaining said service "session" persistently by said plurality of servers, i.e. stored or cached (Narendran: col 4/lines 26-29).

Regarding claim 24, said determining said location at said first server of said session on one of said plurality of servers comprises receiving a message from said second server of an availability of said second server for having said session (Narendran: directory of services see col 15/lines 61-col 16/line 5).

Regarding claim 25, wherein said token can identify a plurality of sessions (Narendran: col 4/line 10-15).

Regarding claim 26, plurality of server communicates with each other to support awareness of the server available in the group or cluster (IBM: topology services section 2.1. 4 on p. 12, section 3.3.3 status updates on p. 59-61).

Regarding claim 27, pluralities of server are distributed (IBM: distributed redundant servers (i.e. no master) for implementing failover in event of a server failure (i.e. eliminating a single point of failure) section 2.2.2 on p. 17) .

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Narendran-Andresen in view of IBM in further view of DEAN et. al. U.S. Patent No. 6,023,762 (Dean hereafter).

Regarding claim 28, comprises limitations substantially the same as claim 1, same rationale of rejection is applicable,

exchange information (e.g. load and/or availability) between a pluralities of servers via a process (called self-discovery) enabling the awareness of each other in the resource pool of server (IBM: topology awareness services section 2.1. 4 on p. 12, section 3.3.3 status updates on p. 59-61);

determining at a first server of a plurality of server, a most recently accessed session of a plurality of session provided by a plurality of server and redirecting a client request via said first server to a second server of said plurality of server having determined most recently accessed session (Andresen: page 1, right column first paragraph);

although prior art teaches establishing a connection between a client unit and any one of said plurality of servers for sending a request and receiving a response thereto including determining a most recently accessed session and redirecting said client unit to said most recently accessed session, Andersen does not teach relating, correlating or mapping a plurality of services with a token associated with a client's unit.

Dean teaches a system/method related to networked computer systems as shown in Fig. 1, including a client unit (108) sending over an established connection a request for a plurality of services ("sessions") on a plurality of services providers (106) ("servers") (col 3/lines 37-43, col Mines 59-67) by inserting a ("token") smart card (110) in said client unit (col Mines 45-55, col 7/lines 1-21, 62-67);

directing said client unit at a first server (107 of Fig. 2), said first server including a data storage means for identifying a plurality of session types associated with said token which the user of the client

unit has access to (col 2/lines 8-12, 24-42, col 5/lines 40-47) using stored information on table 401 (col 8/lines 30-32, 42-50, 58-61, col 9/lines 1-10, 47-61);

It would have been obvious at the time the invention was made given the suggestion of Andersen for making services available in a multiple server computing environment efficiently including disclosed distributing techniques for redirecting client's request adaptively to the changes in the network configuration including the distribution of the scheduling means to overcome the disadvantages of prior art system to consider Dean's teachings for distributing client's request to multiple servers in a secure manner. Motivation to combine the teachings of Dean with Andersen will be complement Andersen first/redirecting server configured with proxy functionalities configure with either redirection or forwarding techniques, with the proxy functionalities of the redirecting agent in the Dean system both making services available in a multiple server computing environment. One would be motivated to implement these components for accessing a plurality of sessions on a plurality of servers for accessing corporate wide area network or Intranet services behind a proxy exemplified by Andersen as a firewall to protect said plurality of sessions on said plurality of server from unauthorized users whose authentication is augmented by smart card technology.

Response to Arguments

7. Regarding claims 1 and 28, Applicant argues (p. 8 of remarks) prior art does not teach added limitation, specifically, server redundancy and client redirection to maintain computing resource availability when a server non-response or failure occurs. Because according to applicant's interpretation based on the abstract and column 12, lines 12-65, the Narendran reference redirects is based on access to documents, e.g., document access rate; whereas, in amended claim 1 redirecting is based on server failure.

In response to the above, mentioned argument, Applicant's interpretation of the prior art is noted, however, the provided cited portion reads, "*In event of server failure, the redirection probabilities may be recomputed such that the load of the client requests is approximately balanced among the remaining document server*" (col 12/lines 11-15). *Rebalancing (by the redirection server)* can be characterized as a network flow problem, this network flow approach is *suitable for use in situations in which documents on a failed server are replicated and therefore available on another server or servers* (col 12/lines 26-33). Redirection occurs in event of a server failure, by redirecting clients requested to an redundant (replicated) server, a single point of failure is eliminated, argument is not persuasive.

8. Regarding claims 1 and 28, Applicant argues (p. 8 of remarks) prior art does not teach added limitation, specifically, server redundancy and client redirection to maintain computing resource availability when a server non-response or failure occurs. Because according to applicant's interpretation based on the abstract and column 12, lines 12-65, the Narendran reference client's access documents, whereas, in amended claim 1, clients access "sessions".

In response to the above-mentioned argument, applicant's interpretation of claimed terminology is noted, however, according to the applicant's specification sessions are a representation of services (p. 22, lines 5-11), a service is a program that provides some function to the user (p. 24, lines 9-12) or a process that provides output data and responds to user request and input (p. 19, lines 3-4), services makeup a session (p. 22, lines 15-16). The claimed term session as set forth by applicant do not intended to exclude services (e.g. documents) provided by servers. Argument is not persuasive.

9. Regarding claims 1 and 28, Applicant argues (p. 8 of remarks) prior art does not teach added limitation, specifically, server redundancy and client redirection to maintain computing resource availability when a server non-response or failure occurs. Because according to applicant's interpretation, the Narendran reference is completely silent in this regard.

In response to the above-mentioned arguments, so as long and the reference teaches server redundancy and client redirection to maintain computing resource availability when a server failure occurs, it eliminates a single point of failure.

10. Applicant argues (p. 9-10 of remarks) prior art does not teach server redundancy and client redirection to maintain computing resource availability when a server failure occurs.

In response to the above-mentioned argument, it is noted that applied prior art teaches this subject matter as indicated above. Prior art made of record not relied on, also teaches that it was well know at the time of applicant's invention, fault tolerant failover mechanism (also known as switchover), wherein server redundancy (clustering or farming of servers) supports client redirection to maintain computing resource availability when a server failure occurs (see office action mailed 02/18/04). For example,

Lotus Domino Advanced Services: High Availability, Smelser, C., LDD Today, Jan 1997, p 1-5.

Smelser discloses the clustering of servers to provided high availability in event of a server failure wherein high availability provides continuous, uninterrupted access to networked resources, in spite of serious failures that may occur within the network. High availability is achieved by providing synchronized redundancy of components that automatically and transparently take over for failed components and maintain data availability. Domino Clusters provide uninterrupted access to network

information resources, providing fail-over protection including pass-through failover to other servers in the cluster (i.e. redirecting in event of server failure). Domino servers failover clients by redirecting database request to other servers in the cluster, this failover occurs totally *transparent* to the user.

11. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure; pertinence is presented in accordance with MPEP§ 707.05. Copies of Non-Patent Literature documents cited will be provided as set forth in MPEP§ 707.05(a):

U.S. Patent No. 5,796,999 (08-1998): Azagury et. al. discloses the desirability for users within one portion of distributed data processing network to access a database stored in another portion of data processing network, this access may be increased by providing a so-called "resilient database system.", a resilient database system is a journaled database that is replicated within a distributed data processing system; one database is designated as the *primary database while all others are backup replicas*. *A resilient database system is resilient to single points of failure*. That is, a failure which is caused by a failure of the computer wherein one of the database replicas resides or a media failure which damages one of the replicas. Cluster management can provide a recovery mechanism, *transparent to both the application programmer and to the end-user*, which allows a seamless switchover to a backup replica in the event of the failure of a primary replica.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (571) 272-3902. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Jack B. Harvey can be reached on (571) 272-3896. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system, status information for published application may be obtained from either Private or Public PAIR, for unpublished application Private PAIR only (see <http://pair-direct.uspto.gov> or the Electronic Business Center at 866-217-9197 (toll-free).


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B. Prieto
Primary Examiner
March 14, 2005


Primary Examiner